



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/578,558

08/28/2006

Martin Ferguson-Pell

117-583 (AMK)

4972

23117 7590 12/15/2009  
NIXON & VANDERHYE, PC  
901 NORTH GLEBE ROAD, 11TH FLOOR  
ARLINGTON, VA 22203

EXAMINER

MACARTHUR, VICTOR L

ART UNIT

PAPER NUMBER

3679

MAIL DATE

DELIVERY MODE

12/15/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/578,558	<b>Applicant(s)</b> FERGUSON-PELL ET AL.	
	<b>Examiner</b> VICTOR MACARTHUR	<b>Art Unit</b> 3679	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 85-167 is/are pending in the application.
- 4a) Of the above claim(s) 97,100,101,103,105-113 and 158-160 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 85-96,98,99,102,104,114-157 and 161-167 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION*****Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/23/2009 has been entered.

***Allowable Subject Matter***

In the interest of compact prosecution, the examiner has carefully reviewed applicant's entire disclosure and all relevant prior art. The examiner suggests putting the application in condition for allowance by setting forth an independent claim with the following terminology:

--A lockable articulated sheet structure comprising:

a plurality of first modules each having three coplanar arms extending radially outward from common point, each arm having a bottom surface with a truncated ball extending orthogonally therefrom;

a plurality of second modules each having three coplanar arms extending radially outward from a common point, each arm having an upper surface with a substantially spherical socket defined therethrough;

a plurality of said balls conformingly received in a plurality of said sockets to pivotally connect said first modules to said second modules so that each of said modules is capable of rotating about a first and second axes with respect to a neighboring one of said modules, said first axis being parallel to a plane of the sheet when laid flat and said second axis being orthogonal to a plane of the sheet when laid flat;

a space being defined between a substantially flat surface of each connecting ball and a substantially flat surface of each connecting socket, a locking material filling each said space, each said locking material capable of assuming at least two states including a first soft state which allows relative movement of said modules and a second solid state which at least substantially prevents such movement, a transition between said two states being accomplished by a selective introduction of energy to said locking material; and

Art Unit: 3679

wherein a density of selectable portions of said structure is variable so that said sheet structure may be smoothly molded around complex shapes.--

All remaining claims should either be amended to depend from newly proposed claim above, or canceled.

### ***Status of Claims***

Claims 1-84 are canceled.

Claims 97, 100, 101, 103, 105-113 and 158-160 are withdrawn.

Claims 85-96, 98, 99, 102, 104, 114-157 and 161-167 are rejected

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 85-96, 98, 99, 102, 104, 114-157 and 161-167 are rejected under 35 U.S.C. 102(b) as anticipated by Hoberman USPN 6219974.

Hoberman clearly discloses the structure recited in applicant's product claims.

The prior art structure is substantially identical to the claimed structure such that the PTO must presume claimed functions/properties to be inherent, thus presenting a *prima facie* case and properly shifting the burden to prove otherwise with evidence to the applicant. It is fairly the applicant's burden to obtain and test the prior art since the Patent Office is unable to manufacture

Art Unit: 3679

or obtain prior art products. Mere allegation that the prior art does not inherently possess applicant's claimed functions/properties is not sufficient without actual evidence proving as much. See the following:

- MPEP §2112.01 (I) states "When the structure recited in the reference is **substantially** identical to that of the **claims**, claimed properties or functions are presumed to be inherent... [and] a *prima facie* case of either anticipation or obviousness has been established" (emphasis added);
- MPEP §2114 states "Apparatus claims must be structurally distinguishable from the prior art... [and the] Manner of operating the device does not differentiate apparatus claim from the prior art... [and] A claim containing a 'recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus' if the prior art apparatus teaches all the **structural** limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)" (emphasis in original).
- "Where, as here, the **claimed** and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. See *In re Ludke, supra*. Whether the rejection is based on 'Inherency' under 35 USC 102, on '*prima facie* obviousness' under 35 USC 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products. See *In re Brown*, 59 CCPA 1036, 459 F.2d

Art Unit: 3679

- 531, 173 USPQ 685 (1972)" (emphasis added) *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977);
- “Apparatus must be distinguished from the prior art in terms of structure rather than function.” *In re Schreiber*, 128 F.3d 1473, 1477-78 44 USPQ2d 1429, 1431-32 (Fed.Cir.1997)
  - “Apparatus claims cover what a device is, not what a device does.” See *Hewlett-Packard Co. v. Bausch & Long Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990)
  - “[I]t is elementary that the mere recitation of a newly discovered function or property, inherently possessed by things in the prior art, does not cause a claim drawn to those things to distinguish over the prior art. Additionally, where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on.” (emphasis added) *In re Swinehart*, 58 CCPA --, --F.2d --, 169 USPQ 226 (1971), and *In re Ludtke*, 441 F.2d 660, 664, 169 USPQ 563, 566 (CCPA 1971);
  - “[I]t is the patentability of the product claimed and not of the recited process steps which must be established. We are therefore of the opinion that when the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair

Art Unit: 3679

- and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith.” (emphasis added) *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972);
- "Contrary to appellant's reasoning, after the PTO establishes a *prima facie* case of anticipation based on inherency, the burden shifts to appellant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on... Here, appellant's burden before the board was to prove that Donley's structure does not perform the so-called method defined in the claims when placed in ambient light. Appellant did not satisfy that burden, it did not suffice merely to assert that Donley does not inherently achieve enhanced color through interference effects, challenging the PTO to prove the contrary by experiment or otherwise. The PTO is not equipped to perform such tasks.” *In re King*, 801 F.2d 1324, 1327, 231 USPQ 136, 138 (Fed. Cir. 1986);
  - “Spada was reasonably required to show that his polymer compositions are different from those described by Smith. This burden was not met by simply including the assertedly different properties in the claims. When the claimed compositions are not novel they are not rendered patentable by recitation of properties, whether or not these properties are shown or suggested in the prior art.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990);
  - It appears that, as of yet, applicant has failed to obtain and test the prior art much less submit evidence proving any lack of capability in the prior art to perform the claimed

Art Unit: 3679

functions. Note that MPEP 716.01(c)(II) states that “The arguments of counsel cannot take the place of evidence in the record”.

Claims 85-96, 98, 99, 102, 104, 114-157 and 161-167 are rejected under 35 U.S.C. 102(b) as anticipated by McDonnell USPN 6425703.

McDonnell clearly discloses the structure actually recited in applicant’s product claims.

The prior art structure is substantially identical to the claimed structure such that the PTO must presume claimed functions/properties to be inherent, thus presenting a *prima facie* case and properly shifting the burden to prove otherwise with evidence to the applicant. It is fairly the applicant's burden to obtain and test the prior art since the Patent Office is unable to manufacture or obtain prior art products. Mere allegation that the prior art does not inherently possess applicant’s claimed functions/properties is not sufficient without actual evidence proving as much.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 85-96, 98, 99, 102, 104, 114-157 and 161-167 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoberman US2002/0112413 in view of McDonnell USPN 6425703.



Art Unit: 3679

Hoberman discloses a flexible sheet structure comprising: a plurality of modules overlappingly connected together by pivots. Hoberman does not disclose that the pivots are ball and socket joints.

- McDonnell discloses that such overlapping module pivot connections should be ball and socket joints for the purpose of improving articulation to be both flexible and rotatable interconnection between modules (col.2, ll.59 - col.3, l.5) thereby allowing construction of a wide range of configurations for storage or transport (col.5, ll.48-51) due to the increased degrees of freedom (col.9, ll.6-13). Note that McDonnell teaches that the ball and socket may be of any number and configurations (col.4, ll.50 - col.5, l.4 and col.9, ll.18-39). Note also that McDonnell is not limited to writing devices (col.9, ll.30-39) such that one of ordinary skill would have easily seen the McDonnell ball and socket pivot as being applicable to the Hoberman modules.
- Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the Hoberman modules to be connected by ball and socket pivots, as taught by McDonnell, for the purpose of increasing the degrees of freedom (McDonnell, col.9, ll.6-13).
- “[T]he results of **ordinary innovation** are not the subject of exclusive rights under the patent laws. Were it otherwise patents might stifle, rather than promote, the progress of useful arts. See U.S. Const., Art. I, section 8, cl.8.” In re KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385 (U.S. 2007) (emphasis added). Accordingly, changing a trivial detail of the prior art (such as a pivot point position)

Art Unit: 3679

is at best an “ordinary innovation” if any innovation at all, and therefore does not constitute sufficient reason for patentability.

### ***Response to Arguments***

Applicant's arguments with regard to the claim rejections have been fully considered but they are not persuasive.

Applicant argues that the prior art is not capable of performing applicant's claimed intended use functions/properties of being capable of expanding, contracting, in certain manners to form complex shapes, be smoothly molded around complex shapes, etc. This is not persuasive as follows:

- Applicant has chosen to seek patentability of product claims, not method claims.
- While inherency of a claim limitation requires that the limiting feature of the invention be necessarily present in the prior art (not just possibly, see MPEP 2112), product claims are only defined by structure, therefore it is this structure of a product claim that must necessarily be present. In a product claim, inherency of a function/property limitation is treated quite differently than a structural limitation (see MPEP 2112.01 and 2114).
- While there is nothing wrong with a functional intended use limitation in a product claim, such functional intended use limitations only limit a product claim if they clearly require further specific structure. Accordingly, the PTO's burden of establishing inherency of a functional limitation in a product claim is not the same as the PTO's burden of establishing inherency of a structural limitation in a product

Art Unit: 3679

claim. Rather, where the PTO has provided prior art anticipating, or making obvious, all structural limitations of a product claim, any functions/properties must be presumed to be inherent until applicant proves otherwise with submission of evidence. See MPEP 2112.01 and MPEP 2114 and case law from which these sections are derived (detailed in the reworded rejections above).

- As detailed in the reworded rejections above, MPEP 2112.01 and MPEP 2114 and the case law from which these sections are derived, clearly state that because the PTO cannot obtain and/or test prior art products, if applicant tries to define a product claim by function/property then applicant fairly has the burden of obtaining the prior art, testing the prior art and submitting actual evidence proving that the prior art is incapable of performing the claimed functions/properties.
- As of yet, applicant has failed to obtain and test the prior art much less submit evidence proving any lack of capability in the prior art to perform the argued functions. Note that MPEP 716.01(c)(II) states that “The arguments of counsel cannot take the place of evidence in the record”.

### ***Conclusion***

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114.

Art Unit: 3679

See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor MacArthur whose telephone number is (571) 272-7085. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on (571) 272-7087. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 3679

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197.

December 15, 2009

/Victor MacArthur/  
Primary Examiner, Art Unit 3679